

WORLD: THE EXPRESSION OF THE ABSOLUTE

Dr. Rajeshwar Mukherjee

Chief Editor

Prof. Srinivasa Varkhedi

Vice-Chancellor, KKSU, Ramtek

Editor

Prof. Madhusudan Penna

Director, Research & Publication



राष्ट्रहिताय संस्कृतम्

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PREFACE

It is indeed a matter of great pleasure and pride for Kavikulaguru Kalidas Sanskrit University, Ramtek to have this rarest opportunity of hosting the 50th session of All India Oriental Conference at Nagpur. This AIOC-50th session at Nagpur will be forever remembered by all as the year 2019 also happens to be the year of Centenary Celebration of AIOC. The premier objective with which the great scholars of yester years had contemplated and established this national academic event called All India Oriental Conference has been achieved through these years with scores of young scholars contributing significantly to the treasure house of knowledge through their valuable research work.

The research of yore and of the present should be properly recorded so as to make it easily available to all lovers of knowledge and wisdom in the years to come. With this objective, we have contemplated to commemorate the 100th year of this grand event of 50th session of AIOC by way of publishing 100 monographs on different subjects in four languages viz., Sanskrit, Hindi, Marathi and English. It is no doubt a herculean task but still worth of it, for the reason that these 100 monographs will inspire many young scholars to take upon a fresh study and research of the oriental subjects with more vigour and zeal.

The AIOC Centenary Publication Series includes wide variety of subjects like Literature, Language, Veda, Indian Philosophy, Sanskrit Grammar, Law, Children Literature, Yoga, Astronomy and Astrology, Ayurveda, Pali, Prakrit, Jain, Buddhism, Education, Library Science, Poetics, Aesthetics, and Indology. It also includes reprint of some rare texts of academic importance which have gone out of print are not easily available. We wish to mark this centenary celebrations with this series that connects the glory of the past and aspirations of future. I place on record my sincere gratitude to all the authors of these monographs who have kindly contributed to the richness of this

series.

I am confident that the books published in these series will definitely inspire the lovers of Oriental Learning in general and of Sanskrit Language and Literature in particular.

On this occasion, we have published a memorable book of all the speeches of Section-Presidents of all previous sessions of AIOC. It is indeed a very capacious addition to any collection. I with all respect thank two eminent scholars of our times - Prof. Gautam Patel, President and Prof. Saroja Bhate, General Secretary, the torch bearers of AIOC who have not only encouraged us in this venture but also made all efforts to provide these valuable historical speeches for us. I thank all executive members of AIOC and my colleagues of the varsity for making this event a grand success. My words fall short in describing the painstaking efforts and scholarly commitment of my esteemed colleague Prof. Madhusudan Penna, local secretary of this session in bringing out this series.

I also take this opportunity to profusely thank Shri. Subhash Jain and Shri Dipak Jain, the proprietors of New Bharatiya Book Corporation, New Delhi for their enthusiastic approach and timely work with all precision and grace.

Let us all sanctify ourselves in the eternal flow of wisdom by reading these books and recommending these to others also!

सरस्वती श्रुतिमहती महीयताम्

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10th January 2020

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CHAPTER 1

WORLD AS THE ANIMATION OF ĀNANDA: A SCIENTIFIC EXPLORATION

1.0. Introduction

Every living being has an inherent aspiration to put an end to the sufferings of life and to be happy for all eternity. The identification of misery is the starting point of every philosophy and the absolute freedom from it is the finale. Buddha, the enlightened one, has expressed conclusively that life is soaked with misery and hence affliction is unavoidable. The four noble truths, propounded by the master, are wholly devoted to the identification of the causes of misery with the ascertainment that the misery can be overcome through the adoption of appropriate means and methods. The Yoga philosophy also speaks about the fivefold affliction identifying ignorance as the prime and the primal cause. As this ignorance is the generator of all miseries, the Yoga philosophy observes that only the total annihilation of ignorance can lead one to the absolute freedom from the clutch of misery. When this absolute freedom is achieved, the experience of bliss or Ānanda shines in its supreme splendor. The Vedic seers have eulogized the Ānanda not only as the Self, but also as the reality absolute. Through the attainment of this Ānanda one can transcend the world full

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of afflictions to rejoice in the immortality of the Self.

- 1.1. The word 'Ānanda' has been derived from the verbal root '*nadi*'. Pāṇini in his famous Dhātupāṭha records it as '*ṭunadi samṛddhau*',¹ which connotes prosperity or growth. However, the word has been used extensively in the sense of 'joy' or 'bliss'. As prosperity leads to happiness, therefore the word 'Ānanda' connoting bliss is a natural linguistic consequence. But it requires mention that the import of prosperity is not limited to material prosperity alone. It may however suggest material, vital, mental, intellectual as well as spiritual growth. Therefore Ānanda stands for prosperity, abundance, fullness, joy and bliss.
- 1.2. The Vedic literature, especially the Upaniṣads, have used the word 'Ānanda' innumerable times giving rise to a philosophically profound concept. The Vedic seers identified the highest form of Ānanda with the absolute reality, the Brahman. The word brahma has been derived from the verbal root '*br̥ha*' which also suggests growth and sound. The Dhātupāṭha reads: '*br̥ha br̥ddhau, śabde ca*'² The seers of the Upaniṣads have equated Brahman, the absolute reality, with ānanda and rasa. Again according to Pāṇini rasa also connotes sound,

¹ Dhātupāṭha 65.

² Dhātupāṭha 733.

*rasa śabde ca.*³ It is found that Upaniṣad identifies the primal sound ‘Om’ with the supreme reality, *omiti brahma*.⁴ The Brahman which is *satyaṃ-jñānam-anantam*⁵ is of the nature of bliss and immortality. Therefore, *ānanda*, *brahma*, *rasa*, *satyam*, *jñānām*, *anantam*, *amṛtam* are quite synonymous in the parlance of Upaniṣad.

**Ānandah=Brahma=Satyam=Jñānām=
Anantam=Rasa=Sabda=Amṛtam**

- 1.3. As Ānanda is equated to joy or bliss, it is to a great extent considered as purely subjective experience. Now a question arises: Can this subjective experience of bliss be objectively defined? Is there any signature of bliss available in the objective world? Though Ānanda, in its truest sense, is a purely subjective experience, the rishis of the Upaniṣads have accomplished a successful mapping of Ānanda with the objective world; as they conceive that the entire creation to have come from the bliss, is sustained in the bliss and to be dissolve in the bliss. The Taittirīya Upaniṣad records: *ānandao brahmeti vyājānāt/ ānandāddhyeva khalvimāni bhūtāni jāyante/ ānandena jātāni jīvanti/ ānandaṃ prayantya bhisamviśantīti*.⁶ The entire world of manifestation is the

³ *Dhātupāṭha* 713.

⁴ *Taittirīya Upaniṣad* 1.8.1.

⁵ *Taittirīya Upaniṣad* 2.1.1.

⁶ *Taittirīya Upaniṣad* 3.6.1.

objective expression of bliss. The Vedic seers have not only accomplished the challenging task of objectifying and quantifying ānanda, but have dared to define different units of measuring it. The Ānandavallī of Taittirīya Upaniṣad makes an explicit analysis of the different measuring units of Ānanda. To start with, it models a person having youth, strength, vitality, energy, good health, knowledge, plenty of wealth and morality. The happiness enjoyed by of this model person is the unit of human bliss called ‘Eko Mānuṣa Ānandaḥ’. Hundred times of the unit of human bliss is equal to one unit of bliss of man-gandharva. Again the one unit of bliss experienced by man-gandharva multiplied by hundred will give the one unit of bliss of divine gandharvas. Thus the Upaniṣad goes on defining the units of bliss for the manes, Gods in the heaven, Karmadevas, Devas, Indra, Bṛhaspati, prājapati and Hiranyagarbha one after another. The different units of bliss and their conversion from one to the other are presented below in the tabular form.

Conversion table of Units of Bliss										
Ema	Mga	Dga	Cla	Ada	Kda	Da	Ida	Bra	Pa	Ba
100 ¹	100 ⁰									
100 ²	100 ¹	100 ⁰								
100 ³	100 ²	100 ¹	100 ⁰							
100 ⁴	100 ³	100 ²	100 ¹	100 ⁰						
100 ⁵	100 ⁴	100 ³	100 ²	100 ¹	100 ⁰					
100 ⁶	100 ⁵	100 ⁴	100 ³	100 ²	100 ¹	100 ⁰				

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100^7	100^6	100^5	100^4	100^3	100^2	100^1	100^0			
100^8	100^7	100^6	100^5	100^4	100^3	100^2	100^1	100^0		
100^9	100^8	100^7	100^6	100^5	100^4	100^3	100^2	100^1	100^0	
100^{10}	100^9	100^8	100^7	100^6	100^5	100^4	100^3	100^2	100^1	100^0

$$*x^0 = 1$$

$$*100^0 = 1$$

Ema=Eko mānuṣa ānandaḥ,

Mga=Manuṣyagandharvāṇāmānandaḥ

Dga=Devagandharvāṇāmānandaḥ

Cla=Ciralokalokānāmānandaḥ

Ada=Ājānājānām devānāmānandaḥ

Kda=Karmadevānām devānāmānandaḥ

Da=Devānāmānandaḥ

Ida=Indrasyā'nandaḥ

Bra=Brhaspaterānandaḥ

Pa=Prajāpaterānandaḥ

- 1.4. It is noticeable at this point that the units of ānanda are so constructed that the conversion from one to the other requires the multiplication by the conversion factor in terms of the integral powers of 100. It is well-known that metric system is advantageous over the other standard systems as the conversion is effected there only by the multiplication of the conversion factors in the terms of integral powers of 10. As 100 is the second power of 10, the same advantage is obtained while using the integral power of 100 as conversion factor. Though in the

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modern perspective, subsequent to the discovery of metric system, such unitization does not appear to be anything special; but one is struck with utter astonishment to observe such a mathematical insight prevalent among the Vedic thinkers at the time when the knowledge of the modern mathematical system was not present even in its nebulous form.

- 1.5. The essence of Brahman and its expression as the world of relativity has been summed up in the famous verse of Vākyapadīya: anādinidhana brahma śabdatattva yadaḥśaram /vivartate'rthabhāvena prakriyā jagato yata.⁷ The eternal reality is of the nature of sound and its expression; and it manifests as the process of worldly evolution through apparent modification. The Supreme Brahman is Ānanda which is essentially of the nature of rasa. As rasa connotes sound, Ānanda represents the eternal vibration. Though the absolute reality is beyond the reach of mind and speech and hence no verbal expression can fare good in defining the indefinable. However, Śabda, Sound or vibration is the highest expression of the supreme reality in the world of relativity. The physical universe, as per modern physics, has evolved in terms of quantum fluctuations, which are some form of vibration. The association of uncorrelated vibrations with the origin of physical universe

⁷ *Vākyapadīya* 1.1
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may be treated as the expression of the supreme Ananda as the framework of physical space, time and causality.

- 1.6. Upaniṣad asserts that Brahman, which is infinite bliss, has embodied itself as the universe of names and forms which is also infinite. The same infinity as the absolute appears as infinity at the relative level. According to Vedānta tradition, the manifest world of relativity is revealed in two aspects: the microcosm and the macrocosm. Microcosm is the empirical self and the macrocosm refers to the macroscopic world around. The Ānanda is said to be revealed in five different layers in both macrocosm and microcosm. These five layers, beginning from the subtle to gross, have been termed *ānandamaya brahma*, *vijñānamaya brahma*, *manomaya brahma*, *prāṇamaya brahma* and *annamaya brahma* respectively in the Upaniṣads. The ancient Indian sages discovered the dovetailing of the five-fold selves, physical, vital, mental, intellectual, spiritual— *annanmaya*, *prāṇamaya*, *manomaya*, *vijñānāmaya*, *ānandamaya atman*—one telescoping into, overlapping with and fulfilling the other in sequence. Ācārya Saṃkara has formalized the concept with the substitution of the word *brahma* by the word *kośa*. As such, both the macrocosm and the microcosm may be referred to as the combination of *pañcakośa*, which is the manifestation of Ānanda at different levels.

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The word *pañca* has been derived from the verbal root ‘*pac*’ which has been interpreted by Pāṇini as ‘*paci vyaktikaraṇe*’.⁸ As ‘*pac*’ connotes manifestation, therefore the *pañcakośa* is simply the manifestation of the supreme bliss.

- 1.7. This ancient discovery of the rishis in India started receiving its finest vindication and demonstration from the beginning of the twentieth century with the dovetailing and overlapping of the physical science (*annamaya*), biological science (*prāṇamaya*), mental sciences of psychology (*manomaya*), with the spiritual sciences (*vijñānāmaya* and *ānandamaya*). In fact, the beginning of twentieth century marks a revolution in the field of physics with the discovery of the theories of relativity and quantum physics. Fusion of space, time and matter into a single entity and inclusion of consciousness in quantum measurement opened up new vistas in the world of physics. The middle of twentieth century saw a great revolution in the conception of life in the invention of the double helical structure of DNA. Thus began two great thought revolutions simultaneously in the world of matter, *anna* and life, *prāṇa*. The end of twentieth century and the beginning of the new millennium witnessed a grand development in the realm of

⁸ *Dhātupāṭha* 174.

psychological sciences. Researches in the field of neuroscience and neuropsychology raised several fundamental questions about nature of mind and its relation with matter. All the finer shades of mind are yet to be explained in terms of the firing of neurons. The major challenge in neuroscience is to explain all psychic phenomena in in terms of the physics of neurons. The journey of these revolution that shook the world of physical science, biological and psychological sciences engendered a new world-view of matter, life, and consciousness thus initiating a fascinating blend of the physical psychological and life sciences (annamaya, prāṇamaya, manomaya) on the one side and spiritual sciences on the other (vijñānāmaya and ānandamaya).

2.0. Microcosm:

- 2.1. In the microcosm, the physical body represents the Annamaya kośa as it is nourished by matter. The Ānanda which is the source of all is manifested in several forms in this body. Indian philosophy has been bold enough to equate even the sexual pleasure with the manifestation of the absolute bliss. The Bṛhadāraṇyaka Upaniṣad reads: *evam sarveṣāmānandānā-mupastha ekāyanam*, ‘the organ of generation is one merging place of all pleasures’.⁹

⁹ *Bṛhadāraṇyaka Upaniṣad* 2.4.11.

2.1.1. Cells are the basic units of body which are responsible for the sustenance of the body. The cells behave singly as well as collectively to maintain the physique in a tuned condition. All the cells are in perfect coordination and harmony. The moment one of the cells revolts against the others, malignancy develops. But what are factor that regulate these cellular activities in harmony? The bioenergy is responsible for maintaining the somatic activities. Ancient rishis equated this bio-energy with *prāṇa* and the substratum of the *prāṇa* is the Prāṇamaya kośa.

2.2. The Prāṇamaya kośa, according to Vedanta, is the combination of five vital forces *prāṇa*, *apāna*, *udāna*, *vyāna samāna* along the the five organs of action: speech (vak), hands (paṇi), feet (pāda), organ of reproduction (upastha), pāyu (organ of excretion). These organs of action do not represent the gross organs of the body by refer to their vital counterparts. . The biological forces control the physical activity of the living being. The Ānanda experienced as physical pleasure is governed by the action of the Prāṇamayakośa. The Annamaya kośa fills the Prāṇamayakośa. It represents the power of activity.

2.3. The five senses along with the *manas* constitute the Manomayakośa which sustain the Prāṇamayakośa. It represents the power of will which is more fundamental than activity. All the activities are governed by this will.

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Since mind is one of its components it is always in a state of oscillation, *saṃkalpa vikalpātmakam manah*.¹⁰ The Ānanda manifests through the mind as mental happiness. Though the happiness at the mental level is very unstable yet the spark of the highest bliss is detected at this layer.

3.1.1. The Manomayakośa has become extremely significant in the perspective of modern physics. The discovery of quantum mechanics has not only struck at the heart of classical determinism but has also accepted the role of consciousness in the measurement of a quantum event. Actually the measurement problem is the most controversial issue in quantum mechanics which deals with the wave function collapse. At which level the wave function collapses is not yet clearly understood. Invoking the concept of Von Neumann chain in his interpretation of quantum mechanics Wigner holds the object becomes entangled as a result of the interaction of the measuring instrument. Following the Neumann it is considered that the chain is extended up to the consciousness of human observer. According to Wigner the content of consciousness participates in the construction of physical objects. In this context, consciousness indicates the mental awareness and not the absolute consciousness.

¹⁰ *Tattvabodha* 35.

2.4. Vijñānāmaya kośa is the layer in which is gifted with subtle intellect, *buddhi*. The *buddhi* is the determinative faculty, *niścayātmikā buddhiḥ*.¹¹ The supreme bliss manifests here as the subtle delight of the faint awareness of the bliss absolute, which is the supreme reality. Insight and intuition are the jargons used by the modern scientists to refer to the concept of *buddhi* or *vijñāna*. Now this layer is very profound from the standpoint of the science of yoga. It requires mention here that yoga is getting gradual recognition in the mainstream of modern science. Serious scientific study is undertaken to explain the attainments of yogic feats. Ācārya Saṃkara in his commentary of Taittirīya Upaniṣad writes: *yogaḥ yuktiḥ samādhānam ātmaiva ātmā...tasmād samādhānam yogaḥ ātmā vijñānamayasya*.¹² Yoga is conjunction, concentration; it is the self as it were...that concentration which is Yoga is the soul of Vijñānamaya. Vyāsa in his commentary of Yoga sutra also defines yoga as concentration, *yogaḥ samādhi*.¹³ Through the intense concentration one attains the power of discrimination, *viveka*, by which the knowledge of the absolute reality dawns. This Vijñānāmaya kośa is the starting point of both *samprajñāta* and *asamprajñāta samādhi* as discussed in Yogasūtra. The *asamprajñāta*,

¹¹ *Tattvabodha* 35.

¹² Saṃkara's Commentary on *Taittirīya Upaniṣad* 2.4.1.

¹³ Vyāsa's commentary on *Yogasūtra* 1.1.

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the primary level of concentration, develops with concentration on gross objects, concentration on subtle objects, bliss and unqualified egoism. *vitarka vicāra ānanda asmitānugamāt samprajñātaḥ.*¹⁴ Through reasoning and discrimination comes the experience of bliss which accentuates in serenity of unqualified egoism. The seer of Kaṭhōpaniṣad has indicated the importance of this layer in the realization of the supreme Self. The journey from gross to subtle is accomplished here by pointed and fine intellect, ‘*dr̥śyate tvagryaya buddhyā suksmayā sūkṣmadarśibhiḥ.*’¹⁵ Thus developing a faith, *śraddhā*, on the existence higher principles acquiring the knowledge and being guided by the discriminative faculty, *vijñāna*, an individual reaches the abode of Absolute Bliss, the Ānandamayakośa.

- 3.0. The absolute is manifested at the macrocosmic level as the combination of five layers in the similar pattern as that of the microcosm. Other than the Ānandamayakośa, all the other kośas in the microcosm represent the collection of the features of the corresponding kośas of the microcosm.
- 3.1. The annamayakośa of the macrocosm refers to the vast world of matter which is contained in the universe. The Upaniṣads uphold that the absolute Ānanda at the grossest level is

¹⁴ *Yogasūtra* 1.17.

¹⁵ *Kaṭhōpaniṣad* 1.3.12.
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manifested as matter. Taittirīya Upaniṣad Observes: *annaṃ brahmeti vyājānāt/ annādhyaeva khalvimāni bhūtāni jāyante/ ānnena jātāni jīvanti/ ānandaṃ prayantyabhisamviśantīti*.¹⁶ The world has come from matter, it is sustained in matter and will be dissolved into matter. The Upaniṣad asserts that the world, which is a sea of matter, is the permutation and combination of the five great elements: *ākāśa, vāyu, agni, āpah, pṛthivī*. These great elements are manufactured out of the combination of the five fundamental elements conceived by the Vedic seers as *tanmātra*. The primary manifestation *ākāśa tanmātra* gives rise to *vāyuh tanmātra, agni tanmātra, āpah tanmātra, pṛthivī tanmātra* one from the other in succession. These *tanmātra* are infra-atomic particles which combine to manifest as the gross elements, *mahābhūta*. On the other hand, according to the Standard model of particle physics, the elementary particles giving rise to atoms and molecules are the building blocks of the universe. Though it will be too naive to identify *tanmātra* with the elementary particles, yet the world from both the perspective of modern physics and Upaniṣads may be comfortably treated as the evolution of matter. Pushing one step further Indian tradition asserts that the world is the

¹⁶ *Taittirīya Upaniṣad* 3.2.1.

evolution of matter and manifestation of consciousness.

3.1.1. In the perspective of modern physics, space, time and matter cannot exist separately but are intertwined as space-time-matter continuum. The Vedanta considers *ākāśa* as the fundamental evolute of nature which is the substratum of space-time and causality. The seed of space and time remains in the nature in potential form which actualizes as *ākāśa*. As *ākāśa* is the generator of all other elements of matter, the physical universe may be comfortably considered as the space-time-matter continuum and its association with the primordial vibration makes it more meaningful in scientific context

3.2. Now the question arises that how are the elementary particles created? What makes them interact with one another with certain symmetry? What impels these particles to exhibit symmetries and the super symmetries? Particles physics holds that there are four fundamental interactions available in the nature: gravitational, electromagnetic, strong and weak. Three of these four fundamental interactions control and influence the dynamics of elementary particles. Quantum field theory suggests that the fundamental particles produced out of an underlying continuum called the field, which is defined as a continuum that pervades the space and yet displays a discontinuously granular structure in its particle aspect. All sorts of

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activities are governed by the fundamental forces which manifest from the underlying field through the continuous exchange of virtual particles. These virtual particles are not actually the real particles but are the disturbances in the field. Actually a real particle is a regular ripple in the field. The atoms are formed out of these elementary particles by dint of 'broken symmetry'. The gravitational force, the fourth fundamental interaction, governs the dynamics of the macroscopic world. So the entire world of matter is controlled by these four fundamental interactions. This domain of the four fundamental interactions has been hinted upon by the Vedic seers as the Prāṇamayakośa for the macrocosm. The Kathopanīśad records: 'yadidaṃ kiṃ ca jagat sarvaṃ prāṇa ejati niḥsṛtam'.¹⁷ 'All this universe that there is emerges and moves because of *prāṇa*'. Therefore, it is said that the Prāṇamaya kośa is endowed with *kriyāśakti*. The seers of the Upanīśads identify Ānanda, the source of the relative world, as rasa. Rasa is connoted by Pāṇini as sound. The Dhātupāṭha reads, '*rasa śabde*'. The source of the manifest world Ānanda is of the nature of primordial vibration. This primordial vibration may be mapped with the quantum fluctuations of physics for the physical world which have given rise to the particles with fundamental interactions.

¹⁷ Kathopanīśad 2.3.2.
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3.3. The Manomayakośa is the subtler and higher layer where the Ānanda manifests as '*icchāśakti*', the will. Though the observation of modern physics about this layer is quite feeble, yet several analytical views of some of the doyens modern physics corroborate with the lofty projections of the seers of Upaniṣads. The all-time-great physicists like Wolfgang Pauli, Erwin Schrodinger, Arthur Eddington, James Jeans and others have explicitly talked about mind and consciousness which find striking similarities with that of the texts of Vedānta tradition. The joint contribution of Pauli and psychologist Jung in this regard is really a masterpiece of its kind. Taking cue from the dialogue with Jung, Pauli devised a scientific theory on the basis of the unity of mind and matter. The concept of 'collective unconscious' as vented by Pauli and Jung in the volume of the 'The Interpretation of the Nature and the Psyche' and the subsequent communication of Jung in the article 'Synchronicity: An acausal connecting principle' helps us map it with the Manomayakośa of the macrocosm as upheld by the ancient seers. According to the Vedic seers the Manomayakośa not only contains the Prāṇamayakośa but regulates it as well.

3.4. According to Vedānta, the Vijñānāmaya kośa is one of the very significant in the macrocosm which plays an instrumental role in the projection of the universe. The word vijñāna refers to distinctive knowledge which

leads to the experience of highest bliss. The Muṇḍaka Upaniṣad reads: *tadvijñānena paripaśyanti dhīrā/ ānandarūpamamṛtam yadvibhāti//*.¹⁸ Through this distinctive knowledge, the Vijñānamayaakośa reflects the light of the highest bliss and simultaneously conceives the knowledge of the relative universe. Hence it is treated as effulgent womb of the differentiated universe and is called the Hiraṇyagarbha. Being the sum total of all individual *vijñāna* of the microcosm, it becomes the cause of all the individual counterparts. Modern science is yet to articulate anything on this profound layer. However the concept of *unus mundus* floated by the Nobel laureate physicist Pauli along with Jung faintly hints at this sublime layer.

- 3.5. Ānandamaya kośa is the same for both macrocosm and microcosm. It is of the nature of undivided wholes which is beyond all sorts of compartments. It is the lord of all, *sarveśvara*, inner-controller, *antaryāmī*, source, yoni, origin and dissolution, *prabhavāpyau*, of all elements.¹⁹ It is the knower (*kṣetrajña*) of both microcosm and macrocosm. This has been explicitly expressed by Vāsudeva in Śrīmadbhavadgītā: *kṣetrajñam cāpi maṁ viddhi sarvaḥkṣetreṣu bhārata*/.²⁰ ‘Know me

¹⁸ Muṇḍaka Upaniṣad 2.2.8.

¹⁹ Cf. Māṇḍūkya Upaniṣad 1.6.

²⁰ Śrīmadbhagavadgītā 13.2.

also as the knower of fields present all the fields'. Therefore, the Īśvara or the Ānandamayakośa is the supreme light present in both microcosm and macrocosm.

4.0. Macro-Micro Unity: According to Vedanta the microcosm and macrocosm are built on the same plan. Each of the *kośas* of the microcosm can be mapped onto the corresponding *kośas* of macrocosm. But it requires mention here that the Ānandamayakośa has no separate existence for the microcosm and macrocosm.

4.1. Since each of the *kośas* of the individual have their respective macrocosmic counterpart, studying the microcosm extensively and projecting aspect by aspect to the macro-level reveals the vivid picture of the macrocosm, the cosmos. So, individual (relatively known) is the system on which investigations are carried out to record the information about the cosmic being. Making postulate from the study of the micro system with an aim of exploring the macro system and *vice versa* is popularly known as projection principle in scientific research. This is a very powerful scientific method. Rutherford's Atomic model, which has been developed on the basis of the observation and study of the solar system, is a well-known example of the successful application of this method.

4.2. Finally, the philosophical disquisition on the nature of Ānanda arrives at the profoundly

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debated question: Can the Ānandamayakośa be equated to Ānanda, the absolute reality? Ācārya Saṃkara in his commentary of Brahmasūtra has raised serious debate on the non-identity of Ānanda and Ānandamayakośa on the basis of stringent logic. The association of the suffix *mayat* in the word Ānandamaya in the sense of abundance definitely limits the illimitable. Hence the Ācārya has sufficient rationale to differentiate Ānanda from Ānandamaya. One is the unchangeable reality and the other is the ever-changeful eternity. In this context it will not be out of place to mention that Saṃkara never discriminated between the nirguṇa Brahman, reality without attributes, and the saguṇa Brahman, reality with attributes. He conclusively writes: *dvirūpaṃ hi brahmāvagamyate-nāmarūpavikārabhedopādhiviśiṣṭam, tadviparītaṃ ca sarvopādhī vivarjitaṃ*.²¹ The Ānanda which expresses itself as qualified with name, form and infinite attributes is essentially the same which is devoid all qualifications, differentiability and abundance. The Ānanda and the Ānandamaya are the manifestations of the same truth, which is beyond all intellectual ideations.

²¹ Saṃkara's Commentary on *Brahmasūtra* 1.1.11.

CHAPTER 2

THE TRUTH ABOUT THE WORLD: IN THE LIGHT OF PHILOSOPHICAL DEBATES

- 1.0. According to Indian philosophical tradition, every living entity, as soon as it is born, is subjected to threefold misery called *duḥkhatraya*. These threefold miseries constitute *ādhyātmika duḥkha*, intra-organic misery, *ādhibhautika duḥkha*, misery caused by external influences, and *ādhidaivika duḥkha*, misery caused by supernatural agencies. Being plagued with this threefold misery, intelligent beings strive to find the means to terminating it. The insightful seers of ancient India, however, realized that to put an end to all sorts of worldly pangs, completely and permanently, one should preferably acquire a discriminative knowledge of the manifest world, the unmanifest and the self.¹ As these three units are inter-linked constituting a connected whole, the investigation into the manifest universe, which is the most tangible one, opens up the gateway of subtler realizations of the remaining two. Hence began the inquiry into the very nature of the manifest world.
- 1.1. Though the word *jagat* is frequently used, in Indian tradition, to denote the manifest universe of changefulness, a slightly

¹ Cf. *Sāṃkhya-kārikā* 1
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uncommon idiom *prapañca* is also found in Sanskrit texts, which refers to the manifest world. The word *prapañca* has been derived from verbal root *pac*, which means ‘to manifest’. The Pāṇinian *Dhātupāṭha* reads the root *pac* as *paci vyaktīkaraṇe* (1.174), which offers a suggestive connotation because of the suffix *cvi* within the word *vyaktīkaraṇe* denoting *abhūtataṭbhāva*, that is, non-existent becoming existent. Therefore, the word *prapañca* means the entity which is basically a manifestation. The prefix *pra*, indicating something ‘intense’ makes the idiom more meaningful. On the other hand, the word *jagat*, derived from the reduplicated root *gam*, refers to the entire world in perpetual motion. The derivative study of the words *prapañca* and *jagat* ascertains that the world, which is in a state of flux, is principally a manifestation. Changefulness is the intrinsic nature of this world of manifestation and, as such, empirical study fails to reveal absolute truth about the world and derives the relative knowledge instead. In this perspective of eternal changefulness of the world, the consideration of the existence of an unchanging substratum is a logical necessity to give meaning to the change. Thus there is an absolute which manifests as relative. In order to know the absolute beyond the relative, the ancient Indian seers inquired into the unchanging cause behind the universe of manifestation. In their attempt to know the cause of the

manifest universe, the ancient thinkers finally arrived at the concept of absolute which not only explains the manifest world-order in its entirety, but also provides explanation for the unmanifest and the soul.

- 1.2. The inquiry into the ultimate cause of the manifest world began with the peep of human civilization. The *Vedas*, the rich repository of the ancient wisdom, reflect multifarious ideas about the world. The germ of the thoughts about the world, scattered in different hymns of the Vedic *Samhitā*, matured into philosophical concepts in the *Upaniṣads*. Though Vedic *mantras* are highly suggestive in nature, yet some of them explicitly deal with the manifest world and the cause behind the manifestation. The *Nāśadiya-sūkta* suggestively raises the philosophical questions about the manifest world-order and its cause. The *sūkta* reads:

इयं विसृष्टिर्यत आ बभूव यदि वा दधे यदि वा न।

यो अस्याध्यक्षः परमे व्योमन्त्सोऽङ्ग वेद यदि वा न

वेद॥ (10.129.7)

‘whence sprang this world and whether framed by hand divine or no... Its Lord in heaven alone can tell, if even he can show.’²

² J.Muir’s translation, quoted in The Cultural Heritage of India, Vol. I, p. 168
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The hymn hints at a unitary Reality, which is beyond all manifestations, as the cause of creation. The *Puruṣa-sūkta* suggests that the singular reality is the efficient and material cause of the world. The *Vāk-sūkta* and the *Hiraṇyagarbha-sūkta* also hint at the one behind the many. The germ of the concept of singular reality behind manifestation reflected in these vedic *mantras* culminates in the *Upaniṣads*, and that is why *Upaniṣads* are *Vedānta*, the essence of the *Vedas*. The central message of *Upaniṣad* is encapsulated in the opening verse of the *Īsopaniṣad*. *Īsopaniṣad* profoundly records: ईश वास्यमिदं सर्वं यत् किं च

जगत्यां जगत् – ‘all this whatever is in the moving world of universal motion is enveloped by the Lord....’. The changeful universe is supported by the unchanging substratum. The rulership is attributed to it in order to suggest its conscious existence. The other principal *Upaniṣads*, in consonance with the view, conceive of ‘Brahman’ as the efficient and material cause of the world. The *Upaniṣads* observe: *tad sṛṣṭvā tad eva anu pra viśat*³ or *yato vā imāni bhūtāni jāyante*⁴ etc.

- 2.0. The *Upaniṣads* though speak about the non-dual reality at the absolute level; it also gives approval to duality at the relative level. Traces of duality are profusely available within the

³ *Taittirīyopaniṣad* 2.6.1.

⁴ *Ibid.* 3.1.1
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ambit of *Upaniṣad* itself. The *Sāṃkhya* system of thought developed by Kapila is considered to be the oldest philosophical system which has its base rooted in the principle of duality. The division of reality into subject and object, *puruṣa* and *prakṛti*, is the fundamental axiom of *Sāṃkhya* philosophy. The elements of duality as reflected in the *Sāṃkhya* system are also found in the *Upaniṣads*, *Mahābhārata* which includes the *Bhagavadgītā*, and texts like *Manusmṛti*. Arguably in the philosophy of Kapila, the monistic base of *Upaniṣads* remained untarnished as the *puruṣa* and *prakṛti* are not independent realities but are only the modes of *Īśvara*, the supreme ruler of *puruṣa* and *prakṛti*. The *Bhagavadgītā* reads:

मया अध्यक्षेण प्रकृतिः सूयते सचराचरम्⁵

Under my governance the prakṛti gives birth to the world of mobile and immobile beings.. The *Sāṃkhya* system, which basically upholds realism, was built within a strictly logical framework; nevertheless, it was not totally free from the logical inconsistencies. Taking advantage of these inconsistencies Buddhism posed a considerable challenge to this realism of *Sāṃkhya*. Accepting the challenge, the *Sāṃkhya* philosophers successfully defended its stand on strictly rational grounds establishing the reality of selves and objects. In course of establishing *Sāṃkhya* on realistic ground, the exponents of *Sāṃkhya* had to

⁵ *Śrīmadbhagavadgītā* 9.10.
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eliminate the concept of Īśvara from its philosophy and thus evolved the system of Sāṃkhya having no place for the Īśvara in its scheme. Hence the first documented work on the Sāṃkhya philosophy, ascribed to Īśvarakṛṣṇa is free from the concept of Īśvara.⁶ Although Kapila is ascribed as the founder of Sāṃkhya, the *Sāṃkhyakārikā* of Īśvarakṛṣṇa is considered to be the most authentic document of Sāṃkhya system.

- 3.0. According to Sāṃkhya philosophy, the manifest world-order is a real transformation of *prakṛti* under the influence of *puruṣa*. *Prakṛti* and *puruṣa* are the independent realities and all the material effects are but the modification of *prakṛti*, which is the root cause of the world of objects. Furthermore, every event connected to the world is governed by *Satkāryavāda*, the principle of cause-effect relationship. The manifest world issues out of the unmanifest and undergoes six fold modifications, *bhāvavikāra*. Finally, it merges in the unmanifest to be projected again. The cycle of projection and dissolution goes on *ad infinitum*. The Sāṃkhya system, though presents the most rationalistic philosophy, has been subjected to stringent criticism offered by the proponents of Vedānta. Bādarāyaṇa, the author of *Brahmasūtra* pioneered the tradition of

⁶ Cf. Sarvepalli Radhakrishnan, *Indian Philosophy*, Vol. 2, pp. 231-232.

criticism in a formal way. The legacy of criticism initiated by Bādarāyaṇa in his *Brahmasūtra* was pushed further by Ācārya Śaṃkara who vehemently criticized the Sāṃkhya doctrine of insentient *prakṛti* to be the primal cause of the world order. These criticisms did not aim at completely shattering the system, but to refine the thoughts facilitating the construction of a consistent system. It is noteworthy that Śaṃkara himself has not refuted the Sāṃkhya theory in totality but also extended his approval to Sāṃkhya principles which give a rational explanation of the phenomenal existence.⁷

3.1. According to the *Brahmasūtra*, the *puruṣa* and *prakṛti* of Sāṃkhya are no independent realities, but the modification of a Singular reality called Brahman. Badaranyana's contention against the Sāṃkhya theory, which has been further commented on by Śaṃkara in his favour, makes an impressive landmark in the history of criticism. The chief objections of Bādarāyaṇa reinforced by Śaṃkara are as follows :

- Bādarāyaṇa in the *Īkṣatyadhikaraṇa* (*Brahmasūtra* 1.1.5-1.1.11) of his *Brahmasūtra* raises strong objection against the Sāṃkhya doctrine of unconscious *prakṛti* to be cause of the manifest world. The

⁷ Cf. Kakali Ghosh, *Legacy of Sāṃkhya Concepts in Śaṃkara's Interpretation: An Exegesis*: Paper read in the 22nd Vedānta Congress, CC-0. Ravikuland Kandas Sanskrit University Ramtek Collection

objection has been substantiated on the ground that there is no indication of it in the *Upaniṣads*, which is clear from the deliberating capacity of the ultimate cause. The *sūtra* reads: *Īkṣater nāśabdam*. (*Brahmasūtra* 1.1.5)

Elucidating it further, Śaṅkara comments that since the *Śruti* accepts the visualizing capacity of the Ultimate cause, which is a feature of consciousness, the causality of the insentient *prakṛti* stands discarded.

- Bādarāyaṇa further adds that the act of visualising cannot be treated as secondary as the world-cause is treated as Self. He writes in form of aphorism: *gauṇas cen nātmaśabdāt*.⁸ Śaṅkara adds that the Self refers to the intelligent principle; and the sentient principle cannot refer to an insentient principle like *prakṛti*.
- Bādarāyaṇa further says that the *pradhāna* cannot be taken as the self because liberation is promised for one who holds on to the Self. The *sūtra* records: *tanniṣṭhasya mokṣopadeśāt*.⁹

Śaṅkara says that the identity of sentient Self and insentient is an utter impossibility. However, in interpreting the sutra *kāmāc ca nānumānāpekṣā*¹⁰ of *ānandamayādhikaraṇa*

⁸ *Ibid.* 1.1.6.

⁹ Loc.cit.

¹⁰ *Ibid.* 1.1.8.

the essence of *īkṣater nāśabdam* is echoed with reference to the idiom so 'kāmayata of *Taittirīyopaniṣad*.¹¹

The objections against the causality of insentient *pradhāna* have been raised again and again in the *samanvayādhyāya* of *Brahmasūtra* starting from *īkṣatyadhikaraṇa* till the end. Śaṅkara has been very explicit in this regard in his interpretation of the *sūtra*—*etena sarve vyākhyātā vyākhyātā*.¹² He clearly writes: *īkṣter nāśabdam ityārabhya pradhānakāraṇavādaḥ sūtrair eva punaḥ punaḥ āsaṅkya nirākṛtaḥ* /¹³

Starting with, “Because of the attribution of seeing, the one *Pradhāna* of the *Sāṃkhya* which has not been taught by the *Upaniṣads* is not the cause of the universe” the theory of *Pradhāna* as the cause was raised and refuted again and again by the aphorisms themselves.

- In the *Smṛtyadhikaraṇa*¹⁴ of *Brahmasūtra*, Bādarāyaṇa warns that the vedic statements regarding the causality of the world should not be exploited to render scope to Kapila's *Smṛti*. The *sūtras* read: *smṛtyanavakāśa-doṣaprasaṅga iti cen nānyasmṛty-anavākāśadoṣaprasaṅgāt/ itareṣāṃ cānupalabdhe/*

¹¹ *Taittirīyopaniṣad* 2.6.

¹² *Brahmasūtra* 1.4.28.

¹³ Śaṅkara's commentary on *Brahmasūtra*.

¹⁴ *Brahmasūtra* 2.1.1-2.1.2.

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Śaṃkara even dares to challenge the authority of Kapila here, though he honestly acknowledged the authenticity of Kapila's *Smṛti* and its acceptance in the mindset of common people furnishing thus the justification for his repeated attempts to repudiate the Sāṃkhya philosophy.

- In the commentary of *Vilakṣanatvādhikaraṇa*¹⁵ Śaṃkara has made a criticism of the Sāṃkhya objections against the causality of Brahman and finally proved their reasoning to be totally inconsistent.
- In the *Racanānupattyadhikaraṇa*¹⁶, Bādarāyaṇa furnishes logical inconsistency of Sāṃkhya theory in regard to the causality of inanimate *pradhāna*. These inconsistencies of the Sāṃkhya theory identified by Bādarāyaṇa have been further analyzed and established by Śaṃkara on the basis of sheer logic.

Bādarāyaṇa apprehended that even if the conjoint participation of *puruṣa* and *prakṛti* can somehow explain the process of creation, inanimate *pradhāna* can never be justified as the cause of the world owing to a few reasons. He writes: *puruṣasmavad iti cet tathāpi* /¹⁷ If it is argued that the conjoint effort of *puruṣa* and *prakṛti*- like that of a lame man riding on a blind man or loadstone influencing iron-justifies the process of creation, the argument

¹⁵ *Ibid.* 2.1.4-2.1.11.

¹⁶ *Ibid.* 2.2.1-2.2.10.

¹⁷ *Ibid.* 2.2.7.

cannot be accepted. Because the *guṇas* of *Pradhāna* do not bear any sort of relationship like the principal and its subordinates and *Pradhāna* is also devoid of consciousness. The *sūtras* read: *aṅgitvānupapatteś ca*¹⁸ and *anyathānumitau ca jñāśaktiviyogāt*¹⁹ Śaṅkara in his commentary answers to the probable Sāṃkhya argument which records that as a lame man riding on a blind man makes a successful journey or a loadstone being in proximity influences an iron, the *Puruṣa* in vicinity to *Pradhāna* can consummate the process of creation. Refuting the same, Śaṅkara writes that since *Pradhāna* is actionless and attributeless, the soul does not have any causal function to induce the action of *Pradhāna*. On the other hand the analogy of loadstone is also futile as the proximity of *Puruṣa* and *Prakṛti* is eternal unlike the inconstancy of proximity of loadstone and iron. Śaṅkara also approves the stand of Bādarāyaṇa regarding the absence of intelligence in *Pradhāna* and the preponderance of any qualities of *Pradhāna* over the other.

- 4.0. Thus through the criticism of Sāṃkhya doctrine of the causality of inanimate *Pradhāna*, Bādarāyaṇa -followed by his illustrious successor Śaṅkara- refined the Sāṃkhya model of cosmology, which was

¹⁸ *Ibid.* 2.2.8.

¹⁹ *Ibid.* 2.2.9.

almost a consistent explanation of the world-order. The inconsistency regarding the ultimate causality of the inanimate Pradhāna has been challenged by the vedantists, on logical ground, who established the sole causality of Brahman at the absolute level. Bādarāyaṇa describes Brahman as *janmādsya yataḥ* and Śaṅkara wonderfully supplements it with the construction of the unique concept of Adhyāsa, which treats the manifest world as the superimposition on Brahman.

The logical conclusion of Adhyāsa however blossomed into the conceptual paradigm of 'absolute-relative' furnishing a scientific explanation for the world. Śaṅkara writes: एकमेव हि परमार्थसत्यं ब्रह्म । इह पुनर्व्यवहारविषयमापेक्षिकं सत्यम्, मृगतृष्णिकाद्यनृतापेक्षयोदकादि सत्यमुच्यते²⁰ Brahman, the Absolute, manifests as the relative world by dint of *māyā*. Since the relative world is a superimposition, *Adhyāsa*, on Brahman hence a deliberation on Brahman, *brahmajijñāsā*, is to be undertaken to reach the absolute transcending the relative. The validity of Sāṃkhya world-view at the relative level is beyond question whatsoever, yet the proponents of Advaita vedanta built a slightly different cosmology from a varied view point which finds wonderful parallels with the modern scientific thought.²¹ It will not be out of place to mention here that the world-view

²⁰ Cf. Śaṅkara's Commentary of *Tattirīyopaniṣad* 2.6.1.

²¹ Cf. Rajeshwar Mukhopadhyaya, "Cyclic Cosmology and Vedānta", *Prabuddha Bharata*,
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projected by the vedantists is with reference to the manifest existence, whereas the cosmology of Sāṃkhya has been conceptualised with reference to Puruṣa, its bondage and liberation²². As the world is a product of Māyā, which is inexplicable (*anirvacanīya*) and marvellous (*mahādbhūtarūpā*), it has the potentiality to engender manifold views of the same reality at the relative level. Hence, most of the debates centre round the deliberation of Brahman, which is the absolute.

- 4.1. Therefore, the world-view proposed in the Sāṃkhya was conceptually modified and fine-tuned by the constructive criticisms offered by Bādarāyaṇa and Śaṃkara. Thus evolved a robust system of thought, which is in consonance with modern scientific approach. However, the budding concept of the world-view contained in the Vedas through the trail of criticisms offered by the Buddhists, the Sāṃkhya s, Bādarāyaṇa and Śaṃkara flowered into a potent theory of world. Swami Vivekananda the modern exemplar of Vedanta, in harmony with the view of Śaṃkara, ruled out the Sāṃkhya view of the duality of *Puruṣa* and *Prakṛti*. According to him, the objection against the duality of *Puruṣa* and *Prakṛti* leads to the ‘natural outcome’ of the non-duality, Advaita. As the

²² Cf. Kakali Ghosh, *Legacy of Sāṃkhya Concepts in Śaṃkara's Interpretation: An Exegesis*.
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existence of infinite Prakṛti and infinite number of Puruṣa is logically untenable, the duality of Puruṣa and Prakṛti is an utter impossibility. The infiniteness of these two realities can be justified only in consideration of the non-duality of the two. However he extends glory to Sāṃkhya for laying down the foundation of such a rational world-view. He asserts:

*But if we ask the Sankhya the question, “Who created nature?” — the Sankhya says that the Puruṣa and the Prakṛti are uncreate and omnipresent, and that of this Puruṣa there is an infinite number. We shall have to controvert these propositions, and find a better solution, and by so doing we shall come to Advaitism. Our first objection is, how can there be these two infinities? Then our argument will be that the Sankhya is not a perfect generalization, and that we have not found in it a perfect solution. And then we shall see how the Vedantists grope out of all these difficulties and reach a perfect solution, and yet all the glory really belongs to the Sankhya. It is very easy to give a finishing touch to a building when it is constructed.*²³

Though Swami Vivekananda was a devout follower of Śaṅkara's Advaita, yet he did not hesitate to criticize Śaṅkara for his bias to interpret every text in the light of Advaita.

²³ Swami Vivekananda, *The Complete Works of Swami Vivekananda*, vol. II, p. 453.
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Śaṃkara accepted duality at the relative level; nevertheless he attempted to interpret the texts, pregnant with the ideas of duality, in favour of advaita and thus unnecessarily landed in controversies. As for instance, Śaṃkara's commentary of the following verse may be discussed:

सम्भूतिं च विनाशं च यस्तद्वेदोभयं सह।
विनाशेन मृत्युं तीर्त्वा सम्भूत्याऽमृतमश्नुते ॥²⁴

Śaṃkara comments: हिरण्यगर्भोपासनेन ह्यणिमादिप्राप्तिः फलम्, तेनानैश्वर्यादिमृत्युमतीत्य असम्भूत्या अव्याकृतोपासनया अमृतं प्रकृतिलयलक्षणमश्नुते...²⁵

Śaṃkara in his commentary of this text has interpreted Saṃbhūti as Asaṃbhūti in a most unusual way with an intention to suit his philosophy, though the straightway interpretation by other commentators makes a good sense of it. Swami Vivekananda observes:

*Thus Shankaracharya committed the mistake in supposing that the whole of the Upanishads taught one thing, which was Advaitism, and nothing else; and wherever a passage bearing distinctly the Dvaita idea occurred, he twisted and tortured the meaning to make it support his own theory.*²⁶

²⁴ *Īsopaniṣad* 14.

²⁵ Śaṃkara's commentary on *Īsopaniṣad* 14.

²⁶ Swami Vivekananda, *The Complete Works of Swami Vivekananda*, vol. III, p. 439.

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5.0. Criticism in the literary and philosophical tradition of ancient India belongs to the domain of logical analysis and justification; and, therefore, whenever a theory stands the test of criticism it not only gains wider acceptance and recognition, but evolves itself to mature into a consistent framework of knowledge. Constructive criticism contributes to the rational development and modification of any system of thought making it free from logical inconsistencies. Thus the projections of the *Upaniṣads* regarding the reality of the world finally flourished into a universal and rational system of thought passing through the tests of a series of criticism offered by several schools of thought.

CHAPTER 3

SELF: AN APPROACH TO QUANTUM NEUROPSYCHOLOGY

In modern days, study into the secrets of Consciousness and Mind has increased significantly with major focus on scientific experiments in Neuropsychology and other allied branches of science. Modern studies in physical sciences like quantum physics too, significantly corroborate with the conclusions of the ancient Indian knowledge-system.

In recent times there has been a radical change in the approach of science. Developments in relativity, Quantum Physics, psychology and Neuro-Science have changed the understanding of people about the universe. The mechanistic model of mind-matter dualism of Descartes and the realism of classical Physics have been put to question at the wake of relativity and Quantum Mechanics. The theory of relativity completely discarded the absolute description of any event of the physical universe by the methods physical sciences. As Eddington had once remarked that there are certain areas in the world of physics which are unattainable by the methods of physics. The cause and effect relation of the old science was also put to radical scrutiny by the modern physicists and the physicists turned their attention from experiments to experience.

Problem of Defining Reality

The absolute description of Reality started eluding the scientists who had to be contented with the relative knowledge of reality. On the other hand, the birth of Quantum Mechanics ushered in the concept of indeterminacy in science. Heisenberg's uncertainty principle invited subjective speculations to the domain of modern science. Consequently, the Copenhagen meet along with other subjective interpretations of Quantum Mechanics shook the age-long pillars of classical determinism. The Einstein-Podolsky- Rosen Paradox, the Bell's theorem, the Schrodinger Cat paradox, the Aspect Experiment posed serious objections against the completely objective descriptions of Reality. The indeterminacy observed in the process of measurement in quantum mechanics engendered several philosophical arguments. The collapse of wave function became a vital issue to the scientists as well as to the philosophers. A large number of scientists accepted the relationship of the collapse of the wave function with consciousness. Thus, the study of consciousness has become a subject matter of deep interest amongst the physical scientists.

The neuro-science, though in its infancy, has been contributing significantly to the modern researches on brain, mind and consciousness. Some scientists are now getting interested in studying the decisive role of quantum processes in understanding the activities of the brain. The main issue is whether the indeterminacy of quantum mechanics approves the role of conscious-will in influencing the physiological activities of the brain. It is still very difficult to locate the area where the quantum event

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actually takes place. There are two different aspects of addressing the problem: On one hand the epistemological issues relating to quantum interpretations are to be studied. On the other hand, the mechanism of synaptic action and its involvement of the quantum processes which control the large scale coherent action are to be investigated. The problems of consciousness in human brain are being studied now with focus on these two vital aspects.

Recent works of theoretical physicist Henry P. Stapp, Neuropsychologist Jeffery M. Schwartz and Psychologist Mario Beauregard have unraveled the finer shades of mind-brain interaction in the light of modern Physics, especially, the quantum mechanics. Stapp and his co-workers raised some cogent objections against the widely accepted concept of accounting for all the psychologically described phenomena on the basis of the brain mechanism. In the perspective of modern neuroscience, brain is considered to be composed of entirely material objects and fields and, as such, all the causal mechanisms relevant to Neuroscience are attempted to be formulated in terms of these material entities. The purely mental or experiential aspects like feeling, knowing and awareness etcetera have not been accepted as causal factors. The mechanistic realism has been established on firm pedestal. Stapp and his co-workers on the basis of quantum mechanical interpretations observed that the consciousness of the human agent enters into the structure of empirical phenomena. According to quantum mechanics, human

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consciousness not only observes a quantum event but simultaneously participates in the event. The double slit experiments due to Richard Feynman along with other quantum paradoxes unassailably establish the role of consciousness influencing the quantum event.

The theory of quantum mechanics accepts the concept of some psychologically described choices of human being influencing the overall causal structure. The physical observation thus became dependent on the consciousness of the human observer. This profound development in modern physics provides an alternative framework for the neuroscientists to describe the neural processes and the dynamics of the brain. This modern theory is being used to analyse and interpret the neural activities and brain function owing to certain structural features of ion-channels critical to synaptic function. Quite a good number of scientists has now accepted the failure of classical models of neurobiological action to provide rational account for all the mechanisms that are operating when human being utilize self directed strategies for the purpose of modulating emotional responses and their cerebral correlates. To quote the words of Stapp and his co-workers:

‘Specifically , the assumption that all aspects of mental activity and emotional life are ultimately explicable solely in terms of micro-local deterministic brain activity, with no superposed effects of mental effort, produces a theoretical structure that fails to meet practical scientific needs, and also fails to accord with causal structure of

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modern Physics.’ (J.M. Schwartz, H.P. Stapp and M. Beauregard, Quantum Physics in Neuroscience and Psychology, Philosophical Transactions of the Royal Society B, 2004)

The researchers however think that the mind plays an actively significant role in observing and modulating one’s own emotional states and the mental actions influence the activities of the brain being in harmony with the laws of Quantum Physics.

In the backdrop of the above discussion, the thoughts of the quantum physicist Wolfgang Pauli nurtured by the psychologist Carl Jung may be aptly invoked. Pauli was the famous physicist whose substantial contribution to quantum physics has earned the Nobel award for him. His ‘**Exclusion Principle**’ is one of the foundational pillars of modern Physics. The theoretical framework which developed through the correspondence and interactions between him with Jung not only forms the underpinning of modern Neuropsychology but echoes the philosophical projections of Advaita Vedānta and Yogaśāstra. The concepts like Collective Unconscious, Archetypes, Unus Mundus etcetera resemble with the several key concepts of Advaita Vedānta, which is considered as the science of Consciousness. The scientific interpretation of Advaita Vedānta by Swami Vivekananda finds wonderful similarity with the Pauli Jung theory.

The seers of Vedānta through logical inquiry and immediate realisation arrived at the conclusion that every object can be reduced to an undeniable and

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irreducible substratum called the Self. This Self is the Absolute Consciousness. It is non dual and without any attributes. Vedānta considers the Self has projected this relative world-order through its apparent modification. The apparent modification of the Self is accomplished by dint of the cosmic power, *māyā*. This *māyā* is the substratum of space-time and causality through which the Absolute Consciousness appears to be relative. The seers of Vedānta through direct experience and logical inquiry discovered that the individual self is one with the cosmic self. A person having this knowledge becomes the knower of the Absolute.

The search for consciousness in Indian philosophy and religion has been pursued in three ways:

1. Through the study of Cosmology
2. Through the study of Mind or *manas*
3. Through the study of consciousness as manifested in different states of existence, viz, waking state, dream state and the state of dreamless sleep.

The Vedānta philosophy has presented a cosmological model which is not only rational but matches with many theories of modern science. This model has not been projected to stress on the nature of the origin and evolution of the universe, but has been proposed in order to establish the sole reality of the Absolute consciousness, the Self. Through logical analysis of *adhyāropa-apavāda*, superimposition and de-superimposition, the seers

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of Vedānta establish that the changeful universe has an unchanging reality as its cause. The World is a relative reality, *mithyā*, whereas its cause the Absolute consciousness is the only Truth, Satya. According to the Vedānta cosmology the Prāṇa and the Ākāśa are the primal evolutes. Prāṇa is the first prominent manifestation of consciousness. The *Kathopaniṣad* says:

yad idam kiṃ ca jagat sarvaṃ prāṇa ejaṭi niḥṣṛtaṃ/
(*Kathopaniṣad* 2.3.2)

‘Whatever there in this world is nothing but the pulsation of the Prāṇa.’

These Prāṇa and Akasha manifest at all the levels of relative existence. At the physical level it represents the sum total of all physical interactions and the sum total of all matter is the Ākāśa. At the beginning of the creation of the physical universe, the Prāṇa remains as potentiality within the Ākāśa. The vibration of the Prāṇa on the Ākāśa triggers off the process of creation in the physical level. Vedānta upholds that the physical level emerged from the mental level. In the mental level the Prāṇa manifests as the psychic forces whereas the Ākāśa represents the infra-atomic particles called *tanmātra*. However, the mental level has the spiritual level as its substratum. In the spiritual level the Prāṇa and Ākāśa remains united as an indivisible whole. Vedānta upholds that these different levels of existence being changeful and ephemeral represent the relative reality but not the Absolute Reality. The Absolute is immutable,

infinite and eternal. Being itself uncaused, It is the cause of all the relative levels of existence.

As per the second view, mind is the medium where the consciousness shines in its highest splendour. But the mind being the product of *māyā* is always directed outward and establishes identification with the objects which are illusory and transitory in nature. These identifications are accomplished through the mental modifications. The Yoga philosophy starts with the prescription of the control of the mental modifications. When the mental modifications are tamed, the mind becomes inward and concentrates on a single object which is the replica of Reality. Through constant practice the mind ultimately loses its own identity and becomes fully absorbed in that object. But the supreme realisation is not accomplished unless the subject-object duality vanishes. When the mind disappears, as it were, the individual self merges into the supreme self and becomes one with it. This is the highest experience of reality, the cessation of all misery. When this supreme state is attained, the much coveted knowledge of the Absolute is obtained.

According to the third view, an inquiry into the Absolute reality may be accomplished through the study of three states of existences, viz. waking state, dream state and the state of dreamless sleep. In the waking state, an individual gains perception through the inputs of the sense-organs and considers those perceptions as real. In the dream state, though the sense-organs remain inactive, the mind manipulates the stored sensory inputs and animates the reality in

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a peculiar way. In the state of dreamless sleep the senses become inactive and the mind becomes free from all sensory impressions. It is a very profound state where the mind becomes empty and the individual experiences a profound bliss for a finite period of time. It is to be noted that the same mind returns with different information about the reality in three different states of existences. Therefore, the notions of reality obtained in the different states of existence are relative and not the Absolute. Vedānta considers these experiences as illusory and asserts that the Absolute is beyond all these relative experiences and perceptions. When the mind ceases to be mind, the realisation of the Absolute is consummated. Thus the Vedānta prescribes the scientific praxis which enables an individual to transcend the mind and its illusory experiences and be established in the Absolute Reality- the Supreme Self.

The Advaita Vedānta as presented in the *Māndūkya-Kārikā* and other similar Advaita works focus on explaining the nature of consciousness and the relation of it with matter, on the basis of the Upanishads. The Advaita understanding of this concept is quite radical and thought provoking.

The Advaita explains Consciousness as Absolute and Relative. The Absolute Consciousness is the Brahman and the relative one is the Individual Consciousness. This relative consciousness is called Witness in Advaita Vedānta. The relativity of self is nothing but the appearance of the proximity of consciousness with matter in the form of Mind. This Vedānta system observes that the Consciousness is

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always absolute but due to ignorance it feels that it is limited within the matter. Realization in the form of ‘I am not this matter or that trapped in the matter, but am the Absolute Consciousness only’ removes the ignorance and then there remains no second one than the Absolute Consciousness.

Ignorance contributes to error in perception of the Reality.

In order to explain this concept, Advaita Vedānta has propounded the theory of *adhyāsa* or superimposition. According to it, the entire world-experience is only a superimposition on the Self (Consciousness). *Adhyāsa* is “the apparent presentation, to consciousness, by way of memory of something previously observed in some other thing”. *Adhyāsa* is the illusory appearance, in another place, of an object seen earlier elsewhere. It is similar in nature to recollection. For instance, on seeing a rope in dim light and not recognizing it as a rope, a person mistakes it for a snake which he has seen elsewhere. The snake is not absolutely unreal, because it is actually experienced, and produces the same effect, such as fear and so on, as a real snake would. At the same time, it is not real, because it is no longer seen when the rope has been recognized. It is therefore described as *Anirvacanīya* or what cannot be classified as either real or unreal.

Echoing the concept of Advaita Vedānta, the early fathers of quantum mechanics conceived of the consciousness as a singular entity ‘of which the plural is unknown.’ The singular consciousness appears as the manifest existence of multiplicity

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owing to the superimposition. The world of multiplicity, which may be further reduced to the world of subject-object duality, is the result of this superimposition. The singular consciousness is, as it were, experienced as the world of multiple names and forms. It is so experienced because it is in our nature to mix up the real and unreal, and therefore perceive a world of duality with multiple knowers/doers/subjects and things to be known/done/objects. In particular, we falsely confuse the eternal Ātman that is our innermost self and is the Witness with no role in empirical life, to be acting as an agent. This confusion is innate to us, and is a matter of common experience requiring no proof. It is beginning- less and endless in the sphere of the empirical universe. This confusion or superimposition is the basic ignorance that results in this world of duality. The world of duality fashioned by *avidyā* is termed *māyā*, or illusion, as it can only be perceived once this basic superimposition has occurred, and all activities including the secular and vedic fall into the field of ignorance as they must presuppose a distinct doer.

The most important point to note here is that the cosmic illusion has two distinct powers as *āvaraṇa* (concealment) and *vikṣepa* (projection). The first kind of power conceals the reality and the second one projects something else. This second kind of *adhyāsa* i.e. *vikṣepa* is by the individual mind in the form of projecting the illusory snake in rope. And, when the mind sees the reality of the object there, the false projection disappears. This is individual

illusion. There is another illusion as cosmic illusion, influencing all in the same way.

The classical example of this is that of a clear crystal appearing as red due to its proximity with red cloth. Sunrise and sunset or stationary trees appearing to move in the opposite direction as the train is moving are all some examples of this kind of illusion. In contrast to the previous rope-snake example, the error and projection of the error are not made by the individual mind per se. The individual mind reaches its conclusion based upon what it sees. What this implies is that the error is not due to mental projection at individual level. Hence, not only one individual, but everyone sitting in the train will have the same experience and everyone on this earth sees sunrise and sunset in the same way. Thus, we can regard this as not an individual creation but the creation of cosmic power, since the error arises from the relative motion and the reference frame from which the motion is measured.

The purpose of the Vedānta is to point out this ignorance as essentially the nature of a false mental notion, and remove all misconceptions, to reveal the nature of Atman. If we understand this *adhyāsa* we can recognize the roles of collective consciousness and the individual consciousness in the process of *adhyāsa* correctly.

Finally, this brings us close to the fact that the mind or the mental states cause the apparent limitations of the self. Therefore, the Advaita Vedānta and the Yogaśāstra lay emphasis on transcending the

limitations of mind in order to achieve oneness with the Consciousness in the form of Realization.

Thus it may be observed that the Witness-ness of the self is only a relative one caused due to false identity with matter. The entire Advaita Vedānta literature is based on the theory of removal of false identity between Consciousness and matter. It may be recalled that according to quantum mechanics also, human consciousness not only observes a quantum event but simultaneously participates in the event.

CHAPTER 4

THE WORLD OF PAULI AND JUNG: IN THE LIGHT OF THE ANCIENT INDIAN WISDOM

1.0. Introduction:

- 1.1. In the recent times the development of quantum mechanics has ushered in a revolution in the world of science introducing the germ of subjectivity. In the days of yore, prior to the august emergence of quantum mechanics in the arena of modern physics, Einstein's theory of Relativity destroyed the notion of the absolute description of the universe. In the subsequent times, quantum measurement problem, as a result of the collapse of the wave function, opened the flood gate of subjective speculations in modern physics. Several interpretations grew up nourishing the subjective implications. The Copenhagen interpretation, the Einstein-Podolski-Rosen paradox, Bell's Theorem, Aspect experiment, Wigner's interpretation etcetera set the stage for working out the intricate relation between the observer and the observed.
- 1.2. It has been observed in quantum mechanics that the state function of a system changes in twofold ways. Firstly, a continuous causal change with time given by Schrodinger's time-dependent equation is observed.

Secondly, a sudden discontinuous, probabilistic change occurs when a measurement is made on a system. Such a change cannot be predicted with certainty because in quantum mechanics the results are always probable and not certain. The sudden change in Ψ is caused by the collapse of wave function. The collapse of the wave-function is related to the measurement of the event. A measurement is interpreted as a discontinuous change in the state of the system which is given by its wave function. The measurement issue is the most controversial issue in quantum mechanics. How and at what state of measurement the reduction process occurs is yet not clear.

- 1.3. In 1927, the all-time great scientists like Albert Einstein, Wolfgang Pauli, Max Born, Erwin Schrodinger, Werner Heisenberg and others gathered in Brussels at the fifth Solvay Congress and had brain storming sessions on the implications of this novel frontier of physics. The uncertainty principle, propounded by Heisenberg, is not only a landmark in quantum physics but is a marvelous theory which has crumbled the age-long pillar of materialistic objectivity in science. The import of the principle was so great that the scientific doyens of the then times assembled at Copenhagen to bring out the subtle implications of this theory. Einstein, Neils Bohr, Heisenberg, Schrodinger, Wolfgang Pauli and many other stalwarts of

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physics exchanged their views to bring out the best interpretation of the principle. The conclusions of Copenhagen interpretation may be summed up as follows:

- i) The wave function is a complete description of a wave/particle. Any information that cannot be derived from the wave function does not exist. For example, a wave is spread over a broad region, therefore, does not have a specific location.¹
- ii) When a measurement of the wave/particle is made, its wave function collapses. In the case of momentum, a wave packet is made of many waves each with its own momentum value. Measurement reduced the wave packet to a single wave and a single momentum.²
- iii) If two properties are related by an uncertainty relation, no measurement can simultaneously determine both properties to a precision greater than the uncertainty relation allows. So, if we measure a particle's position, its momentum becomes uncertain.³

1.4. The Wigner's Interpretation of quantum mechanics is centred round the measurement

¹http://abyss.uoregon.edu/~js/21st_century_science/lectures/lec15.html accessed on 12.12.2013.

² Loc.cit.

³ Loc.cit.
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problem. He invokes the concept of Von Neumann chain in his interpretation of quantum mechanics. Von Neumann starts his consideration from a quantum object an observable of which is to be measured. The object becomes entangled as a result of interaction of the object with the measuring instrument. Neumann extends his chain up to the human observer and naturally the brain of the observer becomes entangled with the instrument and the object. According to Wigner, a state reduction takes place in the measurement. He further adds that a measurement is not completed before consciousness is reached. The consciousness selects randomly one product state out of the superposition of the product states, which effects the state reduction. He also admitted that how consciousness effects the state reduction is unknown. Thus, he suggested that the theory of quantum mechanics should be modified in such a way that the state reduction due to consciousness may be taken into account. However, he stated that if conscious beings enter the picture the quantum equations of motion will cease to be linear. In view of these subjective interpretations of quantum mechanics, Wigner conceived of ‘Two Kinds of Reality’: Consciousness of the Individual and physical object. According to him, the content of consciousness participates in the construction of physical objects.

- 1.5. Though the concept of the central role of the conscious observer in physical observation is still debated, yet the subtle connection between mind and matter could not be overruled. This necessitates giving a fresh look into the subject of matter-mind relationship in an intensive way.
- 1.6. Quantum physicist Pauli along with Carl Jung has informally developed a scientific theory of nature which hints at the ideas involving matter and consciousness replacing hardcore materialism. Furthermore, their scientific theory echoes the mighty projections of Vedānta philosophy. Neo-Vedānta, which speaks in the language science, propounds an integrated model of cosmology that lays down a rational account of the relation between matter, mind and consciousness. This model discards the concept of creation *ex nihilo*, which is axiomatically accepted in several standard scientific and philosophical theories—projecting a rational concept of an unchanging substratum in the background of the mutable universe. Therefore, the scientific theory of Pauli and Jung studied in relation to the wonderful theory of Neo-Vedānta may provide a new insight into the very nature of Reality—Absolute as well as relative.

2.0. Pauli's Scientific Theory of Nature:

- 2.1. Wolfgang Pauli was one of the titans of quantum mechanics, who in his early life was a scientific prodigy. His encyclopedic essay

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on the theory of Relativity earned him an immense fame and wide recognition even when he was a student. In the later period, he made a substantial contribution to the development of quantum mechanics through his famous *Exclusion Principle*, which has won the Nobel Prize for him in the year 1925. He is considered as one of the principal architects who had laid the foundations of quantum mechanics. But Pauli stands out as a genius amongst his contemporaries owing to his intuitive approach to science. He had an outstanding mathematical prowess and yet he had the wonderful gift of intuition which enabled him to investigate the material world and at the same time peer into subtle region of psyche crumbling the narrow barriers of materialistic dogmas. His intuitive approach to matter and mind was marvelous in the truest sense.

- 2.2. In the backdrop of the subjective interpretations of quantum mechanics, where the observer, object and the acts of observation are interlocked, Wolfgang Pauli speculated a scientific model of nature which is compatible with the lofty projections of Vedānta philosophy. Taking cue from the psychological insight of Carl Jung, Pauli thought off an integral model of natural science, which sheds a new light on the matter-mind debate initiated with reference to the quantum interpretations in the contemporary period.

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- 2.3. As a matter of fact, Pauli — in his later phase of life — had a strong antipathy to the ‘merely rational’ interpretations of science. He respected reason but was also aware of its limitations. In fact, he cherished a world-view which respects science but also finds its expression beyond the rigid boundary of logical reasoning. In this context, an insightful observation of the physicist and mathematician Arthur Eddington may aptly be cited. Eddington writes:

*Here is a hint of aspects deep within the world of physics, and yet unattainable by the methods of physics.*⁴

- 2.4. Wolfgang Pauli was deeply influenced by the psychological thoughts of Jung with whom he had long exchanges of ideas through letters⁵. The Jungian concepts like archetypes, symbols, collective unconscious, *unus mundus* etcetera were incorporated by Pauli in his scientific view of Nature. Though Pauli’s Scientific Theory of Nature did not head for any formal publication, yet his train of thoughts, clearly expressed through his personal correspondences, brings home an integral theory of nature. Pauli himself admitted that his personal communications too must be treated as the impact of his thoughts on scientific ideas.

⁴ Arthur Eddington. *Space, Time, and Gravitation*, London: Cambridge University, 1920, p. 182.

⁵ Letter to Born, January 21, 1951
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- 2.5. According to Pauli, physics is intimately related to psyche at a deeper level. The exclusive study of one neglecting the other provides only a truncated view of the reality and hence he sought for an extended scientific framework which would encompass both matter and mind simultaneously addressing the reality as a whole. He considered the science of human activities to be too subtle to be expressed only through rational enterprise. He writes:

*I hope that no one still maintains that theories are deduced by strict logical conclusions from laboratory books, a view which was still more fashionable in my student days. Theories are established through an understanding inspired by empirical material...*⁶

- 2.6. Pauli convincingly worked out the detailed scheme of his scientific theory with the basic assumption that matter and mind are connected at a basic level. He wanted to intuitively address the problem of Absolute Reality, which always eludes the grasp of science in general. As, according to the theory of Relativity, Nature does not have any preferential frame of reference, the measurement of anything in Absolute is an intangible concept to scientists and, as such, they stagger with utter confusion in their

⁶ Harald Atmanspacher. 'Pauli's ideas on mind and matter in the context of contemporary Science', in *Journal of Consciousness Studies*, Vol. 13, No. 3, 2006, p. 10.
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attempt to get the import of Reality in the absolute sense. This opens up a new episode of philosophical speculations in the world of science.

2.7. Pauli's approach to science was nurtured by some intuitive ideas. He conceived of a background reality which is symbolic in structure. He had a firm belief that there is a reality which cannot be directly accessed but can be symbolically referred to. Here, Pauli invokes the Jungian concept of symbol to define the background Reality. As Jung was metaphorical in furnishing his definition of Reality, Atmanspacher *et al* tried to interpret this concept of symbol in the light of Cassirer's philosophy of symbolic forms. According to Cassirer, as reason fails miserably to grapple with the true import of the Reality, human being endeavours to get hold of it with symbolic forms which are considered as the fundamental primitive function manifesting itself in all primitive culture including science. These symbolic forms are the 'essential function of consciousness' according to Cassirer. He also asserted that this fundamental primitive function is the essential function of human consciousness. Some other interpreters also interpret that symbols beget ideas and concepts.

2.8. Pauli was convinced with the efficacy of symbols in scientific theory as physics has a general inclination to formulate mathematical

models of the physical events. These mathematical models are nothing but symbolic constructions. So, the existence of symbols at a fundamental level may not be so much unlikely. According to him, mathematical description of a scientific state of affairs is predominantly symbolic. Pushing his conviction, further, Pauli dared to propose that mathematical symbolism can be extended to a greater domain beyond the realm of physics. Combining the concept of symbols in the scientific speculations drawing an analogy of the mathematical symbols Pauli asserted:

*Only a fraction of a symbol can be expressed by conscious ideas, another fraction acts upon the human 'unconscious' or 'preconscious.' The same holds for mathematical notation, for only those have a talent for mathematics who are capable of perceiving its symbolic power.*⁷

The statement unravels a cardinal principle of Pauli's understanding of human nature. He considered symbols to be the basic principle underlying the conscious and unconscious thoughts of human being. These conscious and unconscious principles constitute the fundamental component of his theories.

- 2.9. Pauli derived his inspiration from Jung's ideas of Archetypes, though he was always guided by scientific rationale.

He identified three layers of human psyche:

⁷ Letter to Pauli by Goldschmidt (1949).
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- i. The conscious
- ii. The personal unconscious
- iii. The collective unconscious

The deeper realm of collective and non-personal character is known as Collective Unconscious whose contents are not individually obtained. It is a subtler realm of which personal unconscious is a part. Jung thought off the concept of archetypes which belong to the contents of Collective unconscious. These are the 'universal dispositions' which are common to human kind as a whole and, to some extent, resembles the instincts. The collective unconscious, according to him, is an entity beyond human experience. He further conjectured that the collective unconscious contains both material and non-material aspects. Archetypes are the subtle patterns within the collective unconscious which are not directly perceivable and are more primitive than the mental constructs. The archetypes manifest in the mental constructs. The totality of human personality comprises the conscious and unconscious aspects of psyche whereas each individual unconscious is a part of the collective unconscious.

- 2.10. Thus this concept of human personality led them to discover the interrelationship between matter and psyche. Pauli and Jung considered that matter and psyche are far more interfused than generally thought of. The inter-

relationship between matter and psyche has been expressed in proper term by Carl Jung. He convincingly affirms:

*Psyche cannot be totally different from matter, for how otherwise could it move matter? And matter cannot be alien to psyche, for how else could matter produce psyche? Psyche and matter exist in one and the same world, and each partakes of the other...*⁸

The corresponding relation between these two aspects not only forms the core of Pauli-Jung theory but opens up a new vista of philosophical speculations in science. Pauli firmly believed that the theory of relativity and quantum mechanics have a philosophical as well as a psychological perspective. Pauli together with Jung ventilated their opinion in the volume of ‘The interpretation of Nature and the Psyche’. Pauli attempted to explore the role of Unconscious in the scheme of the scientific theory. He further related as to how the archetypal images form the basis of scientific theory. On the other hand Jung contributed the article entitled ‘Synchronicity: An acausal connecting principle.’

- 2.11. According to Jung this synchronicity refers to two or more seemingly accidental and not necessarily simultaneous events fulfilling the following three conditions:

⁸ Carl Jung. *The structure and the dynamics of Self*, Complete Works, Vol. 9, p. 2.
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1. Assumption of causal relationship between the events is inconceivable.
2. The events correspond with one another by a common meaning expressed through symbols.
3. Each pair of synchronistic events contains an internally produced component and an externally perceived component.

So, synchronistic phenomena correspond to psycho-physical phenomena, which cannot be exclusively studied by material science alone.

- 2.12. In the perspective of quantum mechanical observations the role of observer influencing the observation of an event is an accepted fact. Jung, however, conceived that human psyche has a place in the quantum mechanical observation about which Pauli was skeptic. But both of them agreed that matter and psyche are the complementary aspects of same reality which is governed by common ordering principles, the archetypes. This evinces that archetypes are the elements of the realm beyond matter and psyche. These are the fundamental entities, which generate the underlying structure of both psyche and material world. Jung conceived of the concept of the underlying reality which manifests as matter and psyche. He termed this underlying Reality *unus mundus*. The *unus mundus* is the unitary reality sustaining the empirical world of multiplicity. He explains:

*Undoubtedly the idea of the unus mundus is founded on the assumption that the multiplicity of the empirical world rests on an underlying unity, and that not two or more fundamentally different worlds exist side by side or are mingled with one another. Rather, everything divided and different belongs to one and the same world, which is not the world of sense but a postulate whose probability is vouched for by the fact that until now no one has been able to discover a world in which the known laws of nature are invalid. That even the psychic world, which is so extraordinarily different from the physical world, does not have its roots outside the one cosmos is evident from the undeniable fact that causal connections exist between the psyche and the body which point to their underlying unitary nature.*⁹

3.0. Vedānta : A Scientific Approach:

- 3.1. The Advaita Vedānta conceives of the Brahman as the sole Reality and the world of appearances as an illusion. This illusion does not correspond to the Absolute non-existence of the World but implies its unceasing changefulness. This paradigm of Advaita Vedānta is called *Satya-Mithyā* paradigm. The modern phase of Advaita Vedānta pioneered is by Swami Vivekananda is popularly.

⁹ Harald Atmanspacher. 'Pauli's ideas on mind and matter in the context of contemporary Science', in *Journal of Consciousness Studies*, Vol. 13, No. 3, 2006, p. 18.
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According to him, the Brahman is Absolute and the world is relative. This new paradigm of Vedānta may be expressed as the *Nitya-Līlā* paradigm. Thus the transition of Advaita Vedānta to its scientific form is marked by the paradigm shift from *Satya-Mithyā* to *Nitya-Līlā*. The *Nitya-Līlā* paradigm is simply the restatement of *Satya-Mithyā* paradigm in scientific parlance. To put in form of equations:

$Satya = Nitya = Śiva = \text{Absolute}$

$Līlā = Mithyā = Śakti = \text{Relative or Manifestations}$

The cardinal tenets of Neo-Vedānta may be summed up as follows:

1. Reality is both Absolute and Relative. *Nitya* is Absolute— *Līlā* is relative.
2. The One and the Many are the same Reality perceived by the same mind at different times and different attitudes.
3. The worldly existence is the manifestation of spirit and evolution of matter.
4. There is a unity of all existence and there is solidarity of the Universe.
5. Individual being is of the nature of the Supreme divine.
6. $\text{Macrocosm} = \text{Microcosm}$

7. Science and Vedānta can be synthesised and Vedānta itself is the ‘science of Consciousness’.
8. Modern Vedānta also accepts the validity of Sāṃkhya-Yoga within the relative domain.
9. Monism is at all levels: physical level, psychological level, spiritual level and in the Absolute level.

4.0. The World-view and Reality in the Light of Vedānta:

- 4.1. The world-view in Neo-Vedānta can be obtained through the lofty projections of Swami Vivekananda reflected in his lectures. Swami Vivekananda was the pioneer, who interpreted Vedānta in the scientific parlance. He worked out an integral model of cosmology which not only charmed the eminent physicist like Nikola Tesla of his times, but at the same time resonates with the scientific theory of Cyclic Cosmology developed by Steinhardt *et al* in the recent times.¹⁰ Swamiji’s projection was unique in the sense that in a single stroke of genius he addressed the cosmology, psychology and spirituality developing an integral model of ontology. He developed his theory on the basis of the vedāntic wisdom without tampering the real spirit of Advaita Vedānta at

¹⁰ Rajeshwar Mukhopadhyaya, ‘Cyclic Cosmology and Vedanta’, in *Prabuddha Bharata*. Kolkata: Advaita Ashrama, June 2014.
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any level. He substantiated the Absolute nature of the non-dual reality simultaneously justifying its relative manifestation.

- 4.2. Swami Vivekananda in his famous Lecture ‘The Absolute and manifestation’ has laid down the general outline of the theory of Vedānta in regard to the import of Reality. The Advaita Vedānta conceives of Brahman as the Absolute, which is one without a second. It is Absolute existence (Sat), Pure Consciousness (Cit) and infinite Bliss (Ānanda). It is the unconditioned Reality, which is beyond the space time and causation. It is self existent and self-revealing. Swami Vivekananda interprets:

*For in the Absolute there is neither time, space, nor causation; It is all one. That which exists by itself alone cannot have any cause. That which is free cannot have any cause; else it would not be free, but bound. That which has relativity cannot be free.*¹¹

The non-dual Absolute appears as the world of relativity when viewed with reference to *Māyā*. This *Māyā*, being of the nature of cosmic power, is the substratum of space, time and causality; and as such, it is essentially the statement of the fact and is not an illusion. The Absolute is self-revealing and beyond the space, time and causation whereas the world

¹¹ Swami Vivekananda. *The Complete Works of Swami Vivekananda*, Vol. II. Calcutta: Advaita Ashrama, 1989, p.

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being relative is the product of space, time and causality. The principle of *Māyā* is a marvelous concept in the philosophy of Advaita Vedānta. The pure consciousness appears to be the manifest existence due to the association with the primal nescience called the *Māyā*. It hides the Absolute nature of the Reality and projects its relative aspects. The manifest existence is but the animation of *Māyā*, which belongs to the relative level of existence.

The relative existence according to Vedānta may be primarily classified into three levels:

1. Physical level
 2. Mental level
 3. Spiritual Level
- 4.3. Regarding the apparent evolution of the physical world Swamiji declared that *prāṇa* and *ākāśa* are the primordial manifestations at the beginning of the cycle. At the commencement of a new cycle, under the cosmic spell of *Māyā*, the first element to appear in the potential universe is the *ākāśa*. This *ākāśa* is associated with the universal cosmic energy called the *prāṇa*. The *ākāśa* corresponds to the universal material of which all the material of this universe has been derived. At the beginning of the cycle, the *prāṇa* remains in the form of potential within the *ākāśa*. When the differentiation starts the *prāṇa*, becomes active and starts generating

vibration on the *ākāśa*. As the vibration becomes faster, *ākāśa* begins to inflate bringing out *vāyu*, *tejas*, *ap* and *pṛthvī* in succession. These fundamental elements combine and recombine to give rise to the world systems. The *prāṇa*, in course of time, manifests as all the energies and force-fields available in nature, like the gravitation, electromagnetism, dark energy, light energy, heat energy, strong and weak forces etcetera. The universe expands for a certain period of time and then undergoes a contraction. Finally, the entire world-system resolves back into *ākāśa* and the different forms of energies merge into the *prāṇa*. At the end of the cycle the *prāṇa*, as cosmic energy, quiets down and becomes potential. Swamiji observes:

*The forces permeate all matter; they all dissolve into Akasha, from which they come out; this Akasha is the primal matter.*¹²

In his lecture on cosmology Swami Vivekananda upholds the unceasing cyclic nature of cosmic evolution. The universe is not absolutely created or destroyed. It undergoes sequential transformation from the non-manifest to the manifest state through phases of periodic expansions and contractions. Swamiji writes:

*Creation cannot have either a beginning or an end; it is an eternal on-going.*¹³

¹² *Ibid.*, Vol. III. Calcutta: Advaita Ashrama, 1989, p.

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4.4. Vedānta further asserts that the process of creation is not restricted within the physical level. The physical universe evolves from the psychological world termed the cosmic mind. Swamiji says that in the cosmic mind, the *prāṇa*, manifests as psychic forces and *ākāśa* as *tanmātra* or fine particles. They are so subtle and fine in the cosmic mind that it is very difficult to perceive and differentiate them. It is also considered as the sum total of all the individual minds. The cosmic mind is also called the Hiranyagarbha. It is a very profound concept in the cosmology of Vedānta. The word Hiranyagarbha etymologically means the Golden Womb. It is the womb as it conceives the material universe of names and forms. The material world issues from it. It is the first manifested being which is the substratum of physical matter and energy¹³. It is the consciousness associated with the subtle body. The attribute ‘golden’ signifies its self-effulgent nature. The *R̥gveda* eulogizes it as the sole master of the universe as it is the illuminator of inner being of every individual. The *Nirukta* explains it in a profound way:

hiranyagarbho hiranyamayo garbho
hiranyamayo garbho 'syeti /

¹³ *Ibid.*, Vol. II. Calcutta: Advaita Ashrama, 1989, p. 436.

¹⁴ Cf. *hiranyagarbhaḥ sam avartāgre bhūtasya jātaḥ patir eka āsīt* (*R̥gveda* 10/121/1).

The interpretation reveals the multiple attributes Hiranyagarbha. It reads:

*This deity is the effulgent womb or intellectual womb; or it pervades all the existence and is the inner light; or it is pure in the sense that it is womb of the supreme consciousness devoid of all qualifications; or it is the deity which permeates the inner being, or it is the individual soul; it is golden or self-effulgent.*¹⁵

It is not only the progenitor of the material universe but is also the illuminator of the mind stuff of the individual being. It supplies the life force in all the beings and enlightens their inner being. The entire universe is connected at this level of Hiranyagarbha. Most probably Pauli and Jung thought of such a concept like Hiranyagarbha in their conjecture about the Collective Unconscious. As the individual unconscious is a part of the collective unconscious similarly the individual mind is a part of the cosmic mind or Hiranyagarbha.

This Hiranyagarbha, which contains the seed of the physical universe, comes into being from the higher sphere of existence where *prāṇa* and *ākāśa* remain indistinguishable being merged in the primal energy called the *Īśvara*. The *Īśvara* as the primal energy manifests from the Absolute Existence, the Brahman, which is beyond all dualities through the projection-power of *Māyā*. This

¹⁵ *Nirukta* 10.23.2

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Īśvara is the efficient and the material cause of the universe. This level of existence may be considered as the spiritual level. The entire world of manifestation remains embedded in it in the potential form. It is the supreme Reality which contains the potentiality of every manifestation. The vision of the universal form of the Īśvara by Arjuna in the *Bhagavadgītā* reveals that the entire universe, variegated in the endless ways, rests in the singularity. *Bhagavadgītā* reads:

*tatraikastham jagat kṛtsnam pravibhaktam
anekadhā/*

apaśyad devadevasya śarīre pāṇḍavas tathā//

‘There in the body of the God of Gods, the son of Pandu then saw the whole universe resting in One, with its manifold divisions.’¹⁶

These are primordial patterns which exist in potential form in the Īśvara. Probably this concept of *unus mundus* floated by Pauli and Jung approximates to the concepts of Īśvara. The archetypal patterns may find resemblance with these infinitely variegated forms. The Upanishad further observes:

tad sṛṣṭvā tad evānu prāviśat

‘That having created entered into that very thing. And having entered there, It became the formed and the formless, the defined and the undefined, the sustaining and the non-

¹⁶ *Bhagavadgītā* 11.12.
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sustaining, the sentient and the insentient, the true and the untrue.’¹⁷

So, the forms in their primordial form embedded in the primordial being, as it were, manifest as this variegated universe.

- 4.5. Thus the physical level, mental level and spiritual level constitute the ontology of Vedānta philosophy. The world of manifestations in its entirety is explained through these three levels of existence. In fact, while interpreting the essence Vedānta, Swami Vivekananda advocated monism at the physical level and the mental level apart from the monism at the spiritual level and Absolute level as posited by Advaita Vedānta. All these levels of relative existences are fundamentally the animation of *Māyā*. Only Brahman, the Absolute Reality is the independent of *Māyā*. *Māyā* is the generator of plurality and Brahman its cause is singular. As a single object, when placed in a gallery of mirrors is observed to be multiple, similarly the one and only absolute consciousness, the Brahman, when observed through the ‘mirror’ of *Māyā* appears to be manifold.
- 4.6. The idea of mind in Vedānta is a very significant concept. Vedānta, in concordance with modern science, does not accept the external sense organs as the organs of perception but consider the corresponding

¹⁷ *Taittirīya Upaniṣad 2.6.1*
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centres in the brain as the senses of perception. As for example, the external eyes are of no avail unless it is stimulated by the brain-centres. These brain-centres together with *manas*, *buddhi*, *ahaṁkāra* and *citta* constitute the internal instrument called the Mind. Swami Vivekananda explains:

*The real vision belongs to the internal organs, the brain - centres inside. You may call them what you like, but it is not that the Indriyas are the eyes, or the nose, or the ears. And the sum total of all these Indriyas plus the Manas, Buddhi, Chitta, Ahamkara, etc., is what is called the mind...*¹⁸

Mind (*manas*) is the recording faculty, Intellect (*buddhi*) is the determinative faculty, ego (*ahaṁkāra*) generates the sense of egoism and memory (*citta*) cogitates. This *citta* is the reservoir of all subconscious thought. This internal instrument is also called the *antaḥkaraṇa*.

- 4.7. However, powerful may it be, mind is nothing but matter in the subtle form. The difference between the mind and matter is only that of degree. Similar to gross matter, mind too does not have any power to perceive. Self, the pure consciousness, is the only perceiver. It is non-matter. Mind is the instrument through which the Self cognizes the external objects. The external world offers perturbation in form of

¹⁸ Swami Vivekananda, *Op. cit.*, Vol. III, p. 402.
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disturbance to the mind-stuff which subsequently produces the thought waves. The Self identifies itself with these thought waves to perceive the external world. So the perception of the external world is merely the animation of mind. Therefore, for any sort of phenomenal perception, mind is the instrument of the Self. Thus from this view point of perception, mind and the physical world are complementary to each other. Pauli also suggested that mind and matter are the complementary aspects of the same reality. He writes:

It would be most satisfactory if physis and psyche could be conceived as complementary aspects of same reality.

In terms of phenomenal reality mind is the internalized matter and matter is the externalized mind.

However, this complementarity does not correspond exactly to the complementarity of quantum mechanics.

5.0. Synergy:

- 5.1. The study of world-view of Vedānta unfolds the striking similarities between the scientific theory of Pauli-Jung and the projections of the seers of Vedānta. The similarities may be summarized as follows:

Both the theories are in agreement with the fact that mind and matter are connected at a basic level.

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- a) According to Pauli-Jung theory every individual has a conscious and a sub-conscious mind denoted by personal conscious and personal unconscious. The concept of Vedānta in regard to mind is also deep and insightful. The mind, according to Vedānta, also has conscious and unconscious counterparts. Furthermore, there is a superconscious aspect of mind apart from its conscious and subconscious aspect.
- b) Pauli and Jung consider that mind and matter in totality constitute the whole of reality. Vedānta considers the phenomenal universe to be the evolution of matter and manifestation of consciousness.
- c) According to Vedānta there is a cosmic mind called the Hiranyagarbha which is the sum total of all the individual minds. It is the also womb of the material universe. The Pauli-Jung theory theorizes a concept of collective unconscious which issues individual unconscious.
- d) Pauli and Jung speculated an underlying principle containing the primordial forms of mind and matter called the *unus mundus*. The Vedānta considers the Īśvara to be the underlying principle containing the seed of the creation.

6.0. Conclusion:

- 6.1. In its attempt to provide a rational explanation of the phenomenal universe Vedānta

philosophy furnishes a fundamental division between matter and consciousness. Pure consciousness is the cause of this phenomenal world. The phenomenal universe is a wonderful combination of matter and Consciousness. Consciousness manifests and the matter evolves. Matter is the Field, *kṣetra* and consciousness is the knower of the field, *Kṣetrajña*. The one and only undivided consciousness is the knower of all the fields—individual and collective. This undivided consciousness is called the *Kṣetrajña*. Had there been no *Kṣetrajña*, the act of knowing could not be accomplished. Therefore, in the phenomenal universe matter and consciousness form the Reality as a whole. The Lord in the *Bhagavadgītā* profoundly declares:

*kṣetrajñam cāpi mām viddhi sarvakṣetreṣu
bhārata/*

*kṣetrakṣetrajñayor jñānam yat tajjñānam
mataṁ mama//*

‘And, O scion of Bharata dynasty, also understand the ‘Knower of the field’ in all the ‘fields’ to be Me. That which is the knowledge the field and the Knower of the field is (true) Knowledge. That is My view.’¹⁹

- 6.2. Though the combination of matter and consciousness is an utter impossibility in the absolute sense, yet owing to the ignorance, the

¹⁹ *Bhagavadgītā* 13.2.
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individual perceives the universe as a combination of matter and consciousness. Consciousness is the Absolute Reality on which the world is superimposed as the combination of matter and consciousness due to nescience. Vedānta terms this superimposition *adhyāsa*.²⁰ As a matter of fact, Absolute consciousness is the only reality and matter is that Reality under limitation. Matter is not the Absolute Reality. It is relatively real. The Absolute Consciousness being a singular entity is without attributes and parts; yet it manifests as the relative existence with infinite attributes, qualifications and differentiations. The Lord in the *Bhagavadgītā* beautifully projects:

sarvendriyāguṇabhāsam sarvendriyavivarjitam/

*asaktam sarvabhṛccaiva nirguṇam
guṇabhoktr ca//*²¹

‘(Though) devoid of all organs, it still shines through the functions of all organs; and (though) verily unattached, (still) it is the support of all.; though without attributes, (still) it is the enjoyer of the attributes.’

- 6.3. Pauli and Jung started their search for the Reality from the scientific interpretation of nature and intuitively discovered the higher realms of existence where mind and matter

²⁰ *Brahmasūtra-bhāṣya*, Preamble.

²¹ *Bhagavadgītā* 13.14.

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interfere and hint at a higher order Reality beyond. This supreme reality exists independently and is the ultimate cause of mind and matter. This unitary existence is the goal of all science- it is the finale. Envisioning this ultimate goal of science Pauli longingly observes:

*For the invisible reality of which we have small pieces of evidence in both quantum physics and the psychology of the unconscious, a symbolic psychophysical unitary language must ultimately be adequate, and this is the far goal which I actually aspire. I am quite confident that the final objective is the same, independent of whether one starts from psyche (ideas) or from physis (matter). Therefore I consider the old distinction between materialism and idealism as obsolete.*²²

²² Letter to Rosenfield, April 1, 1952.
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